

REMARKS

In paragraphs 1 and 2 of the Office Action claims 1, 6, 14, and 17 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by INOUE et al (6,614107), stating:

“These claims read on the well known prior art merged R/W heads. It is well known that operation of the MR read head produces heat which will produce heating of the write head pole tips. Note column 12 lines 7-8 of INOUE et al acknowledges the heating effect produced by operation of the MR head. Note figure 10A of INOUE et al shows such a merged R/W head. The head of INOUE et al has a write portion with a first pole (8) and a second pole (15) with a large yoke portion (not numbered — the portion remote from the medium) and a narrow pole tip (not numbered — the portion immediately adjacent the medium), and a heating element (the MR read head) adjacent the pole tip outside the gap. Concerning claims 14 and 17, INOUE et al clearly indicates that the head is used with a disk drive (see column 10 lines 54-56).”

Responsive hereto, Applicant has amended independent claim 1 to include limitations previously set forth in claims 2 and 3, and Applicant has amended independent claim 14 to include similar limitations. As a result thereof, amended independent claims 1 and 14 now recite limitations that are not taught by Inoue et al. Additionally, claims 6 and 17, which are dependent from amended independent claims 1 and 14 respectively, now through their dependency also contain limitations that are not taught by Inoue et al. Applicant therefore respectfully submits that this ground of rejection has been satisfied.

In paragraph 3 of the Office Action claims 1-3, 6-8, 11, 12, 14, 15, 17, and 18 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by HAMANN et al (2004/0240109), stating:

“Note figures 5A-5C and 6A-6B. HAMANN et al shows a thin film head for use in a disk drive (see figure 9) with heating elements (510 and 550). The heating elements are located both between the pole tips (510) and outside the pole tips (550). The heating elements can be connected in series with the coil (see the embodiments of figure 6a and 6b).”

Responsive hereto, Applicant respectfully traverses this ground of rejection and asserts that the claims include limitations that are not taught by recited prior art. Specifically, with regard to amended independent claim 1, Applicant has inserted the limitation

previously set forth in dependent claim 3 (also rejected herein) that the heating element is electrically connected in series with the induction coil. Applicant asserts that this limitation is neither taught by nor obvious from the cited prior art.

Initially, as is depicted in Figs. 5, 7 and 8 of the application, Applicant's heater is electrically connected in series within the induction coil circuit. Applicant has further amplified this by amendment to claim 3 to specifically recite that all of the electrical current that passes through the induction coil also passes through the heater element and vice versa. As discussed in Applicant's specification, page 10, line 19 through page 11, line 3, an advantage of this series connection is that Applicant's new magnetic head includes only the same number of electrical contacts as previously manufactured prior art magnetic heads. No new magnetic head contacts need be created, and therefore no further disk drive components, circuitry and magnetic head interfaces need be created.

With regard to the cited prior art, Hamann does not teach the electrical connection of a heater element in series with the induction coil, and the statement in the rejection referred to embodiments of Figs. 6A and 6B is not accurate, or utilizes a definition of a "series" connection that is not intended by Applicant. With particular reference to Figs. 6A and 6B, it can be seen that the electrical current that passes through the coil 575 travels from W contact pad 562 to W/H contact pad 564. Regarding the heater circuit, the AC heater current may travel from both the W and the W/H terminal 564 through the capacitors C1 and C2 and heater resistors R1 and R2 to the heater contact 561. It is further significant that the magnetic head depicted in Fig. 6A includes 5 electrical contacts, which though reduced from the 6 electrical contact embodiments depicted in Fig. 5B includes more contacts than the prior art 4 contacts.

Therefore, whereas Hamann evidences a desire to reduce the number of magnetic head electrical contacts (from six to five) Hamann nevertheless has at least one additional electrical contact (over the prior art 4 contacts) for its heater circuitry. Applicant's device avoids the extra contact(s) through its series electrical connection.

With regard to claims 6-8, claims 7 and 8 have been cancelled and claim 6 remains in original dependent format. Applicant asserts that claim 6 is allowable in that

it recites the novel limitations that the heating element is disposed on the opposite side of the second pole tip from the write gap layer. Additionally, claim 6 is allowable in that it depends from an allowable base claim (amended independent claim 1).

Regarding dependent claim 11, Applicant asserts that it is allowable in that it recites the novel limitation that the heating element includes at least two legs for electrical current travel which is not taught by the cited prior art. The relative thickness of the two (or more) legs serves as a way to control the current within the heater leg, as is described in page 12, lines 14-18 of the application. Additionally, claim 11 is allowable in that it depends from an allowable base claim (amended independent claim 1).

Applicant asserts that dependent claim 12 is allowable in that it depends from an allowable base claim (amended independent claim 1).

Regarding amended independent claim 14 and dependent claims 16 and 17, Applicant asserts that amended independent claim 14 is allowable in that it has been amended to include limitations similar to those set forth in amended independent claim 1, and Applicant's arguments regarding the allowability of claim 1 apply to amended independent claim 14. Dependent claim 15 has been cancelled and Applicant asserts that dependent claim 17 is allowable in that it recites a novel location of the heater element on the opposite side of the second pole tip from the right gap layer and because dependent claim 17 depends from an allowable base claim (amended independent claim 14).

In paragraphs 4 and 5 of the Office Action claims 4, 5, 9, 10, 13, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over HAMANN et al (2004/02401 09), stating:

“HAMANN et al shows a thin film head with heater substantially as claimed. HAMANN et al differs in not specifying (A) the listed configuration for the heater and leads (re claims 4, 5, and 16), (B) the exact value ranges for properties (re claims 9, 10, 19, and 20), and (C) the exact materials (re claim 13).

Concerning (A) and (B), it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the listed configurations and values in the head of HAMANN et al. The

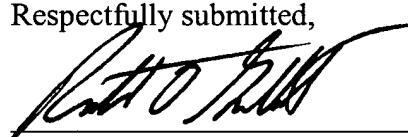
motivation is as follows: would have been the obvious result of routine experimentation and optimization.

Concerning (C), it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize one of the listed materials. The motivation is as follows: these are all well known conductive, heater materials. One of ordinary skill in the art would utilize any such known materials where none were specified."

Responsive hereto, Applicant submits that dependent claims 4, 5, 9, 10, 13, 16, 19 and 20 are allowable in that they depend from an allowable base claim (either amended independent claim 1 or amended independent claim 14), either directly or through mesne claims.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

Respectfully submitted,


ROBERT O. GUILLOT

Reg. No. 28,852

Dated: April 14, 2005

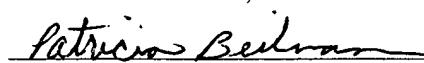
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Intellectual Property Law Offices
1901 S. Bascom Avenue, Suite 660
Campbell, CA 95008
Telephone: (408) 558-9950
Facsimile: (408) 558-9960

CERTIFICATE OF MAILING (37 CFR 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited on April 14, 2005 with the U.S. Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: April 14, 2005


Patricia Beilmann